

Order **Opiliones** Sundevall, 1833^{1 2}

Suborder **Cyphophthalmi** Simon, 1879 (6 families)^{3 4}

Incertae sedis (3 genera, 3 species)

Family **Neogoveidae** Shear 1980 (9 genera, 22 species)

Family **Ogoveidae** Shear 1980 (1 genus, 3 species)

Family **Pettalidae** Shear 1980 (9 genera, 61 species)

Family **Sironidae** Simon 1879 (8 genera, 56 species, †1/3)⁵

Family **Stylocellidae** Hansen & Sørensen 1904 (6 genera, 35 species)

Family **Troglosironidae** Shear 1993 (1 genus, 13 species)

Suborder **Eupnoi** Hansen & Sørensen, 1904 (2 superfamilies)⁶

Superfamily **Caddoidea** Banks, 1892 (1 family)

Family **Caddidae** Banks, 1892 (6 genera, 25 species, †0/1)

Superfamily **Phalangoidea** Latreille, 1802 (4 families, †1)⁷

Phalangoidea incertae sedis (6 genera, 6 species, †6/6)⁸

Family † **Kustarachnidae** Petrunkevitch, 1949 (1 genus, 1 species)

Family **Neopilionidae** Lawrence, 1931 (17 genera, 60 species)

Family **Phalangiidae** Latreille, 1802 (55 genera, 393 species, †1/4)

Family **Sclerosomatidae** Simon, 1879 (154 genera, 1343 species, †2/4)

Suborder **Dyspnoi** Hansen & Sørensen, 1904 (2 superfamilies)

Dyspnoi incertae sedis (3 genera, 3 species, †3/3)⁹

Superfamily **Ischyropsalidoidea** Simon, 1879 (3 families)¹⁰

Family **Ceratolasmatidae** Shear, 1986 (2 genera, 5 species)

Family **Ischyropsalididae** Simon, 1879 (1 genus, 36 species)

Family **Sabaconidae** Dresco, 1970 (4 genera, 53 species, †0/1)

Superfamily **Troguloidea** Sundevall, 1833 (6 families, †2)

Family **Dicranolasmatidae** Simon, 1879 (1 genus, 18 species)

Family † **Eotrogulidae** Petrunkevitch, 1955 (1 genus, 1 species, †1/1)

Family **Nemastomatidae** Simon, 1872 (20 genera, 196 species, †0/4)

Family † **Nemastomoididae** Petrunkevitch, 1955 (1 genus, 2 species, †1/2)

Family **Nipponopsalididae** Martens, 1976 (1 genus, 4 species)

Family **Trogulidae** Sundevall, 1833 (6 genera, 47 species, †0/1)

Suborder **Laniatores** Thorell, 1876 (2 infraorders)¹¹

Infraorder **Insidiatores** Loman, 1900 (2 superfamilies)¹²

Superfamily **Travunioidea** Absolon & Kratochvil, 1932 (3 families)

Family **Nippononychidae** Suzuki, 1975 (4 genera, 10 species)

1. **BY** Adriano B. Kury (for full contact information, see **Contributor name and address** section after **References**). The title of this contribution should be cited as “Order Opiliones Sundevall, 1833. In: Zhang, Z.-Q. (Ed.) Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness”.
2. The order Opiliones includes 4 suborders, 49 families, 1663 genera, 6519 species (†3/17/35). Fossil taxa are indicated by a dagger (†) placed before the name. In the subtaxa counts, total counts are provided, and among them, numbers of fossil taxa are indicated as †x/y/z.
3. Family composition follows Boyer *et al.* (2007) and Giribet *et al.* (2010), noting that Sironidae may be paraphyletic.
4. Detailed information on genera and species may be found in Giribet (2000). This reference however is quickly becoming obsolete by the fast pace of discovery of new taxa and taxonomic refinements.
5. The original assignment of † *Palaeosiro* Poinar, 2008 to the Sironidae is weakly supported.
6. The family Stygophalangiidae Oudemans, 1933 has been erected for a species of the underground waters of Macedonia, but it is probably a member of the Acari. It is no longer cited in connection with the Opiliones.
7. Composition of extant families follows basically Crawford (1992), adding the changes proposed by Taylor (2011) regarding *Megalopsalis* Roewer 1923 and related genera.
8. I gathered here not only the Phalangoidea incertae sedis, but also the Eupnoi *incertae sedis* of Dunlop *et al.* (2004), Dunlop & Anderson (2005), Huang *et al.* (2009) and Garwood *et al.* (2011).
9. In spite of the original placement of † *Halitherses* Giribet & Dunlop, 2005 in the Troguloidea, later work (Garwood *et al.* 2011) did not support this inclusion.
10. Composition of Ceratolasmatidae and Sabaconidae follows Giribet *et al.* (2010).
11. Hypotheses of deep relationships in the Laniatores are constantly changing. A compromise is made here among Giribet & Kury (2007), Giribet *et al.* (2010) and Sharma & Giribet (2011).
12. Here I have partly followed the numerous changes proposed by Mendes (2009), e.g., fusing the Briggsidae Özdiçmen & Demir 2008 and the Cladonychiidae Hadži, 1935 with the Travuniidae.

- Family **Paranonychidae** Briggs, 1971 (7 genera, 26 species)
- Family **Travuniidae** Absolon & Kratochvil, 1932 (14 genera, 42 species, †1/1)
- Superfamily **Triaenonychoidea** Sørensen, 1886 (2 families)
 - Family **Synthetonychiidae** Forster, 1954 (1 genus, 14 species)
 - Family **Triaenonychidae** Sørensen, 1886 (107 genera, 475 species)
- Infraorder **Grassatores** Kury, 2002 (6 superfamilies, 25 families)¹³
 - Grassatores incertae sedis** (66 genera, 93 species, †0/1)
 - Superfamily **Assamioidea** Sørensen, 1884 (2 families)
 - Family **Assamiidae** Sørensen, 1884 (264 genera, 474 species)
 - Family **Pyramidopidae** Sharma et al. 2011 (13 genera, 45 species)
 - Superfamily **Epedanoidea** Sørensen, 1886 (5 families)
 - Family **Epedanidae** Sørensen, 1886 (70 genera, 172 species)
 - Family **Petrobunidae** Sharma & Giribet, 2011 (1 genus, 3 species)
 - Family **Podoctidae** Roewer, 1912 (53 genera, 128 species)
 - Family **Sandokanidae** Özdikmen & Kury 2007 (6 genera, 72 species)
 - Family **Tithacidae** Sharma & Giribet, 2011 (6 genera, 38 species)
 - Superfamily **Gonyleptoidea** Sundevall, 1833 (7 families)
 - Family **Agoristenidae** Šilhavý, 1973 (25 genera, 74 species)
 - Family **Cosmetidae** Koch, 1839 (125 genera, 716 species)
 - Family **Cranaidae** Roewer, 1913 (74 genera, 163 species)
 - Family **Gonyleptidae** Sundevall, 1833 (281 genera, 830 species)¹⁴
 - Family **Manaosbiidae** Roewer, 1943 (27 genera, 47 species)
 - Family **Stygnidae** Simon, 1879 (28 genera, 88 species)
 - Family **Stygnopsidae** Sørensen, 1932 (9 genera, 37 species)
 - Superfamily **Phalangodoidea** Simon, 1879 (1 family)
 - Family **Phalangodidae** Simon, 1879 (21 genera, 115 species)
 - Superfamily **Samooidea** Sørensen, 1886 (3 families)
 - Family **Biantidae** Thorell, 1889 (28 genera, 127 species)
 - Family **Samoidae** Sørensen, 1886 (25 genera, 50 species, †0/2)
 - Family **Stygnommatidae** Roewer, 1923 (1 genus, 33 species)
 - Superfamily **Zalmoxoidea** Sørensen, 1886 (6 families)
 - Family **Escadabiidae** Kury & Pérez, 2003 (6 genera, 8 species)
 - Family **Fissiphalliidae** Martens, 1988 (1 genus, 6 species)
 - Family **Guasiniidae** González-Sponga, 1997 (2 genera, 3 species)
 - Family **Icaleptidae** Kury & Pérez, 2002 (2 genera, 2 species)
 - Family **Kimulidae** Pérez et al. 2007 (10 genera, 36 species)
 - Family **Zalmoxidae** Sørensen, 1886 (70 genera, 206 species)

References

- Boyer, S.L., Clouse, R., Benavides, L.R., Sharma, P., Schwendinger, P.J., Kuranarathna, I. & Giribet, G. (2007) Biogeography of the world: a case study from cyphophthalmid Opiliones, a globally distributed group of arachnids. *Journal of Biogeography*, 34, 2070–2085.
- Crawford, R.L. (1992) Catalogue of the genera and type species of the harvestman superfamily Phalangioidea (Arachnida). *Burke Museum Contributions in Anthropology and Natural History*, 8, 1–60.
- DaSilva, M.B. & Gnaspini, P. (2010) A systematic revision of Goniosomatinae (Arachnida : Opiliones : Gonyleptidae), with a cladistic analysis and biogeographical notes. *Invertebrate Systematics*, 23(6) (“2009”), 530–624.
- Dunlop, J.A., Anderson, L.I. Kerp, H. & Hass, H. (2004) A harvestman (Arachnida: Opiliones) from the Early Devonian Rhynie cherts, Aberdeenshire, Scotland. *Transactions of the Royal Society of Edinburgh, Earth science*, 94, 341–354.
- Dunlop, J.A., & L.I. Anderson (2005) A fossil harvestman (Arachnida, Opiliones) from the Mississippian of East Kirkton, Scotland.

13. In the recent literature, superfamilies of Grassatores are in a state of flux. Again I have opted for a compromise. Assignment of genera to families for the Neotropical groups follows Kury (2003).
14. In Gonyleptidae there have been recently a great number of subfamily reviews which exerted a great impact on the inner organization of the subfamilies, almost always resulting in a great deal of new generic and specific synonymies, e.g., DaSilva & Gnaspini (2010) and Mendes (2001). Total species number remained more or less constant because the descriptions of new species cancelled out the synonymies.

The Journal of Arachnology, 33, 482–489.

- Garwood, R.J., Dunlop, J.A., Giribet, G. & Sutton, M.D. (2011) Anatomically modern Carboniferous harvestmen demonstrate early cladogenesis and stasis in Opiliones. *Nature Communications*, 2, 444.
- Giribet, G. (2000) Catalogue of the Cyphophthalmi of the World (Arachnida, Opiliones). *Revista Ibérica de Aracnología*, 2, 49–76.
- Giribet, G. & Kury, A.B. (2007) Chapter 3. Phylogeny and Biogeography. In: Pinto-da-Rocha, R., Machado, G. & Giribet, G. (Eds.), *Harvestmen: the biology of the Opiliones*. x + 597 pages. Harvard University Press, Cambridge and London, pp. 62–87.
- Giribet, G., Vogt, L., Pérez, A., Sharma, P. & Kury, A. (2010) A multilocus approach to harvestmen phylogeny with emphasis on biogeography and the phylogeny of Laniatores. *Cladistics*, 26(4), 408–437.
- Huang, D.-Y., Selden, P.A. & Dunlop, J.A. (2009) Harvestmen (Arachnida: Opiliones) from the Middle Jurassic of China. *Naturwissenschaften*, 96, 955–962.
- Kury, A.B. (2003) Annotated catalogue of the Laniatores of the New World (Arachnida, Opiliones). *Revista Ibérica de Aracnología*, vol. especial monográfico, 1, 1–337.
- Mendes, A.C. (2009) Avaliação do status sistemático dos táxons supragenéricos da infra-ordem Insidiatores Loman, 1902 (Arachnida, Opiliones, Laniatores). Unpublished Ph.D. thesis. Museu Nacional/UFRJ, Programa de Pós-Graduação em Zoologia, Rio de Janeiro, xvii + 108 p.
- Mendes, A.C. (2011) Phylogeny and taxonomic revision of Heteropachylinae (Opiliones: Laniatores: Gonyleptidae). *Zoological Journal of the Linnean Society*, 163, 437–483.
- Sharma, P. & Giribet, G. (2011) The evolutionary and biogeographic history of the armoured harvestmen – Laniatores phylogeny based on ten molecular markers, with the description of two new families of Opiliones (Arachnida). *Invertebrate Systematics*, 25, 106–142.
- Taylor, C.K. (2011) Revision of the genus *Megalopsalis* (Arachnida: Opiliones: Phalangioidea) in Australia and New Zealand and implications for phalangoid classification. *Zootaxa*, 2773, 1–65.

Contributor name and address

Adriano B. Kury, Departamento de Invertebrados, Museu Nacional/UFRJ, Quinta da Boa Vista, São Cristóvão, 20.940-040, Rio de Janeiro, RJ, Brazil; adrianok@gmail.com